EP 0 999 675 A2

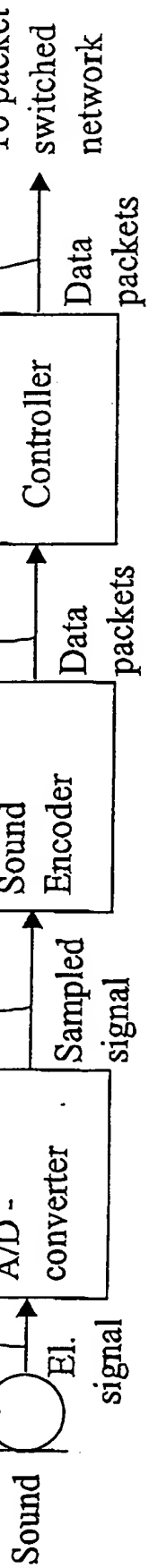


FIG. 1

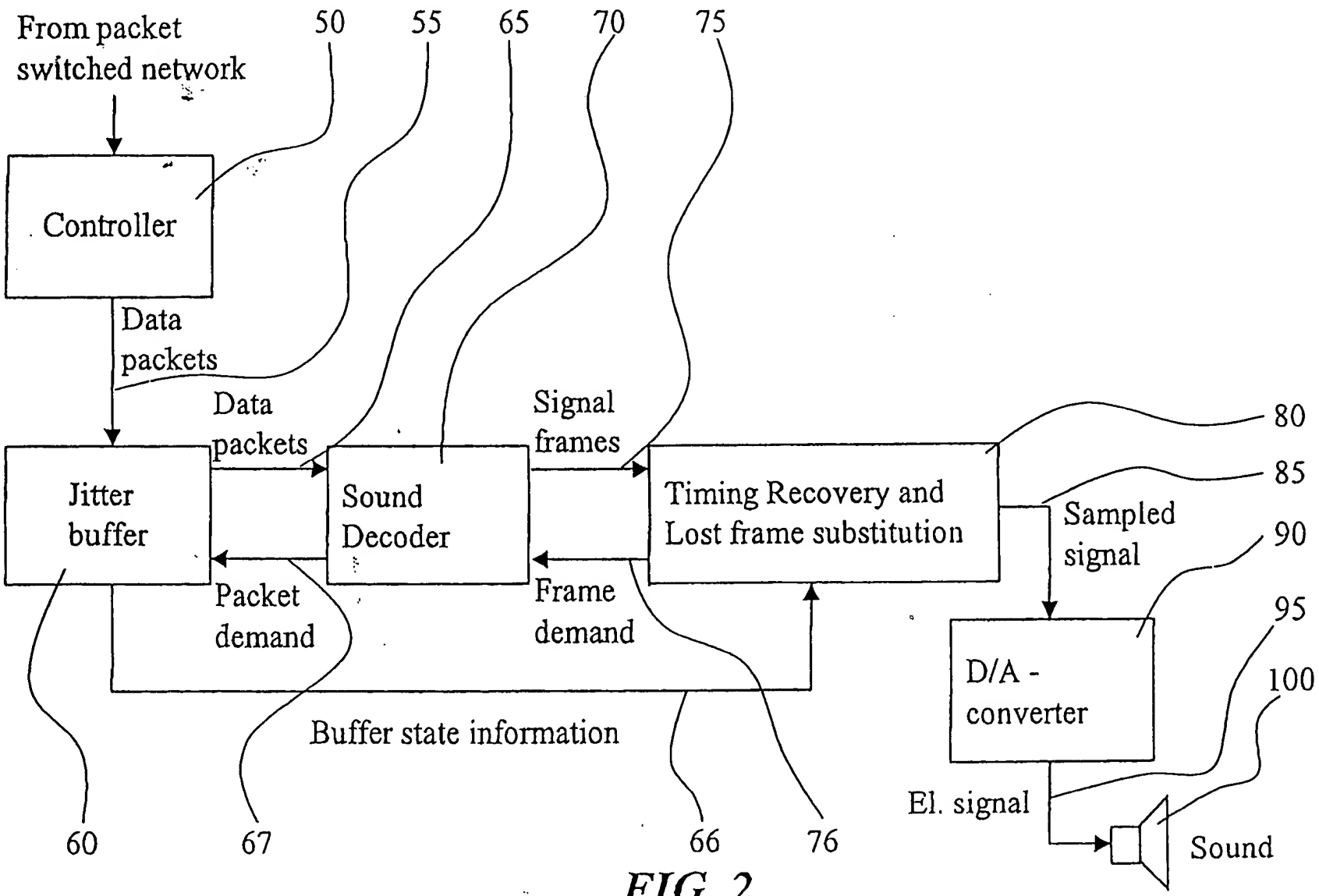


FIG. 2

4. Jan. 2000 11:10 GLOBAL IP SOUND AB No. 0158 P. 40/50

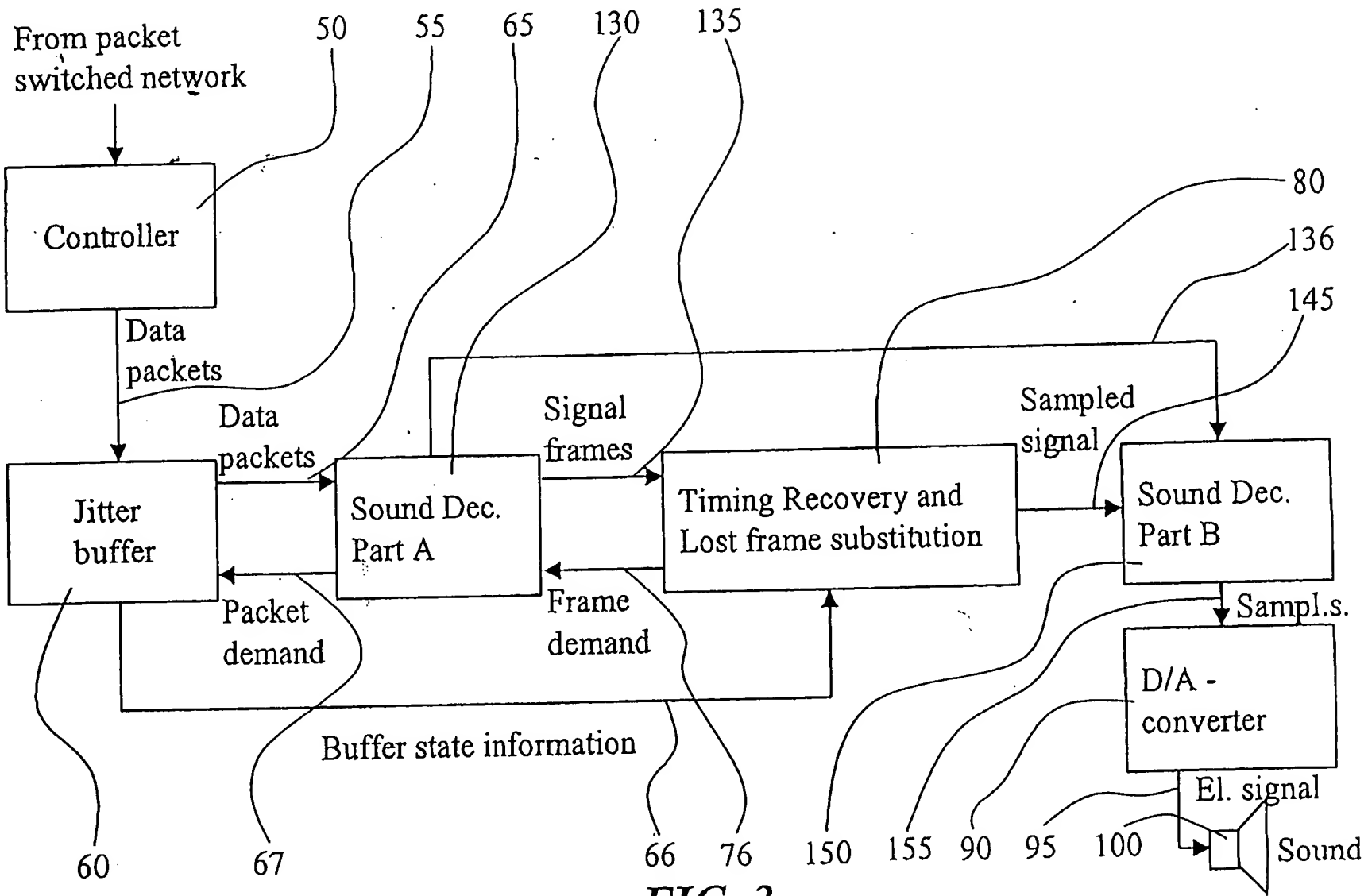


FIG. 3

4. Jan. 2000 11:11 GLOBAL IP SOUND AB No.0158 P. 41/50

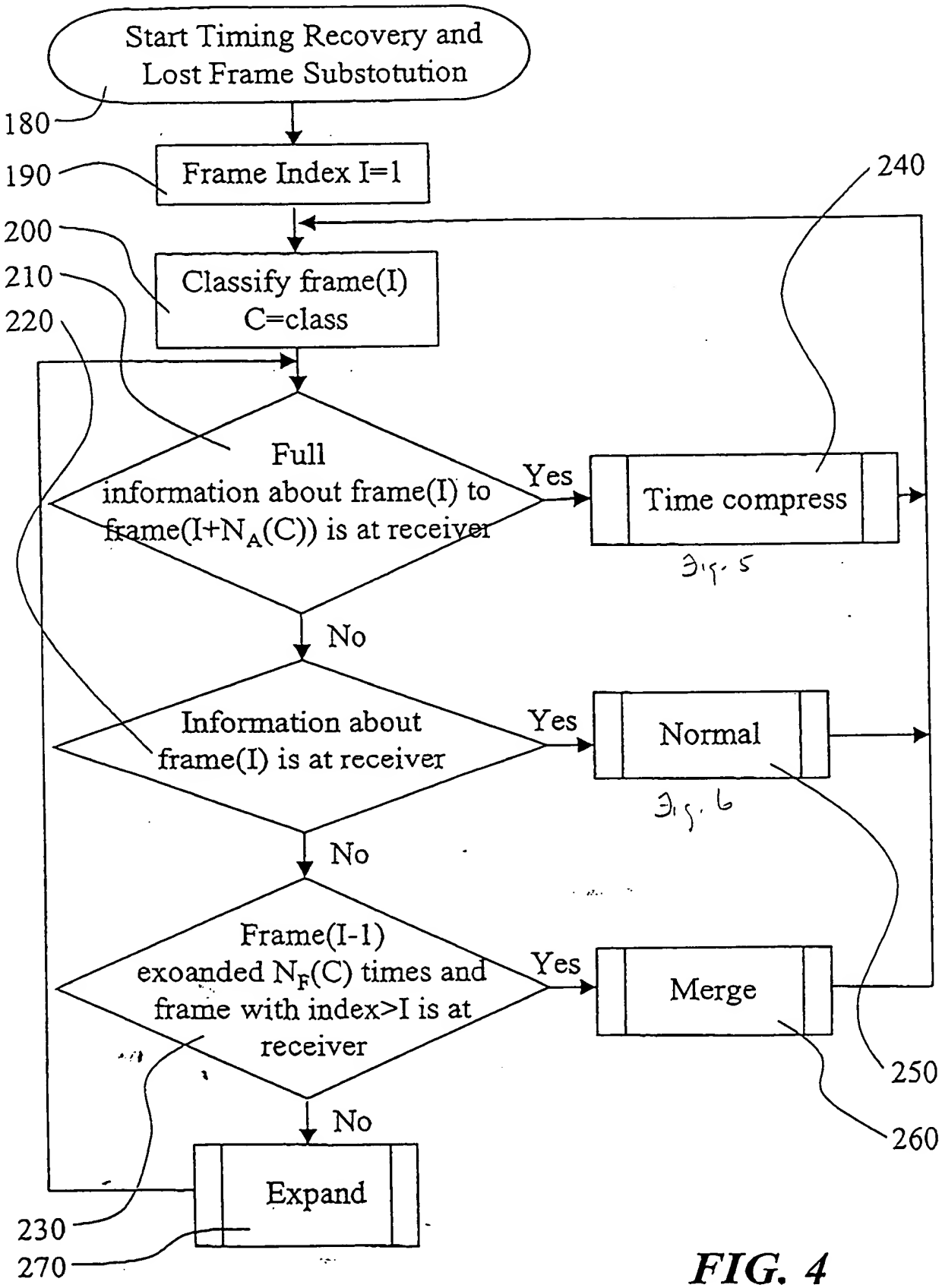

Start Timing Recovery and Lost Frame Substotution
180
Frame Index I=1
190
240
200
Classify frame(I) C=class
210
220
Full information about frame(I) to frame(I+N_A(C)) is at receiver
Yes
Time compress
Fig. 5
No
Information about frame(I) is at receiver
Yes
Normal
Fig. 6
No
Frame(I-1) exoanded N_F(C) times and frame with index>I is at receiver
Yes
Merge
250
260
No
Expand
230
270

FIG. 4

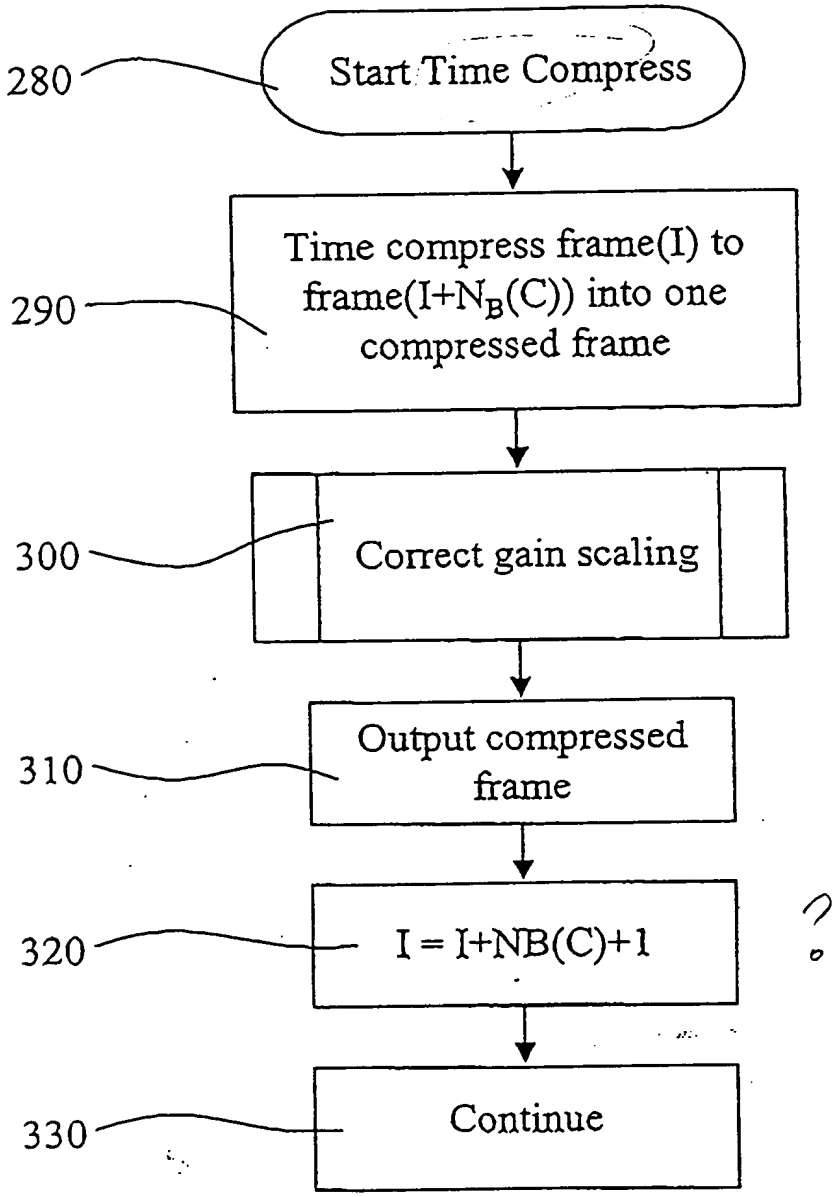

280
Start Time Compress
290
Time compress frame(I) to frame(I+N_B(C)) into one compressed frame
300
Correct gain scaling
310
Output compressed frame
320
I = I+NB(C)+1
330
Continue

FIG. 5

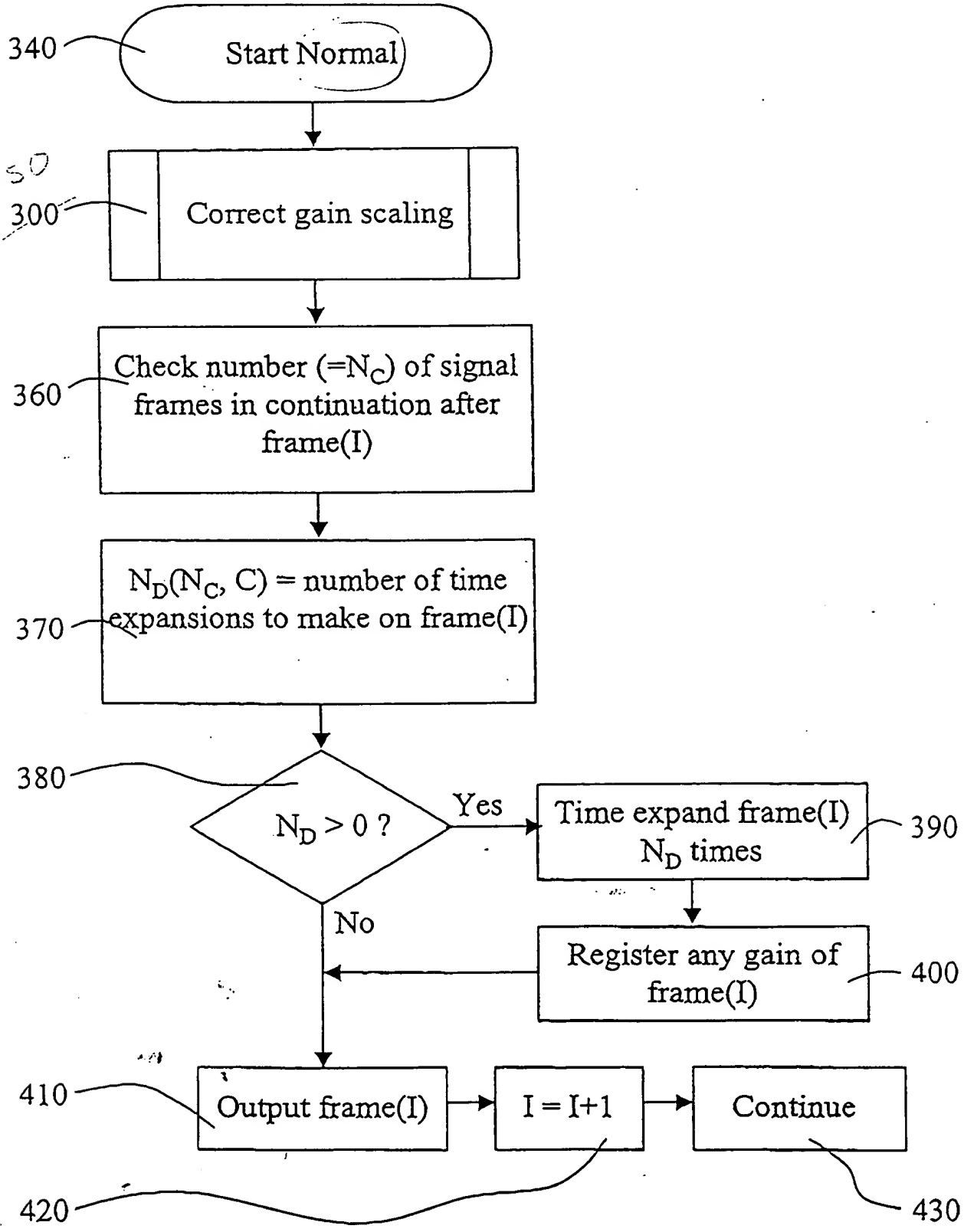

340
Start Normal
350
300
Correct gain scaling
360
Check number (=N_C) of signal frames in continuation after frame(I)
370
$N_D(N_C, C)$ = number of time expansions to make on frame(I)
380
$N_D > 0$?
Yes
Time expand frame(I) N_D times
390
No
Register any gain of frame(I)
400
410
Output frame(I)
I = I+1
Continue
420
430

FIG. 6

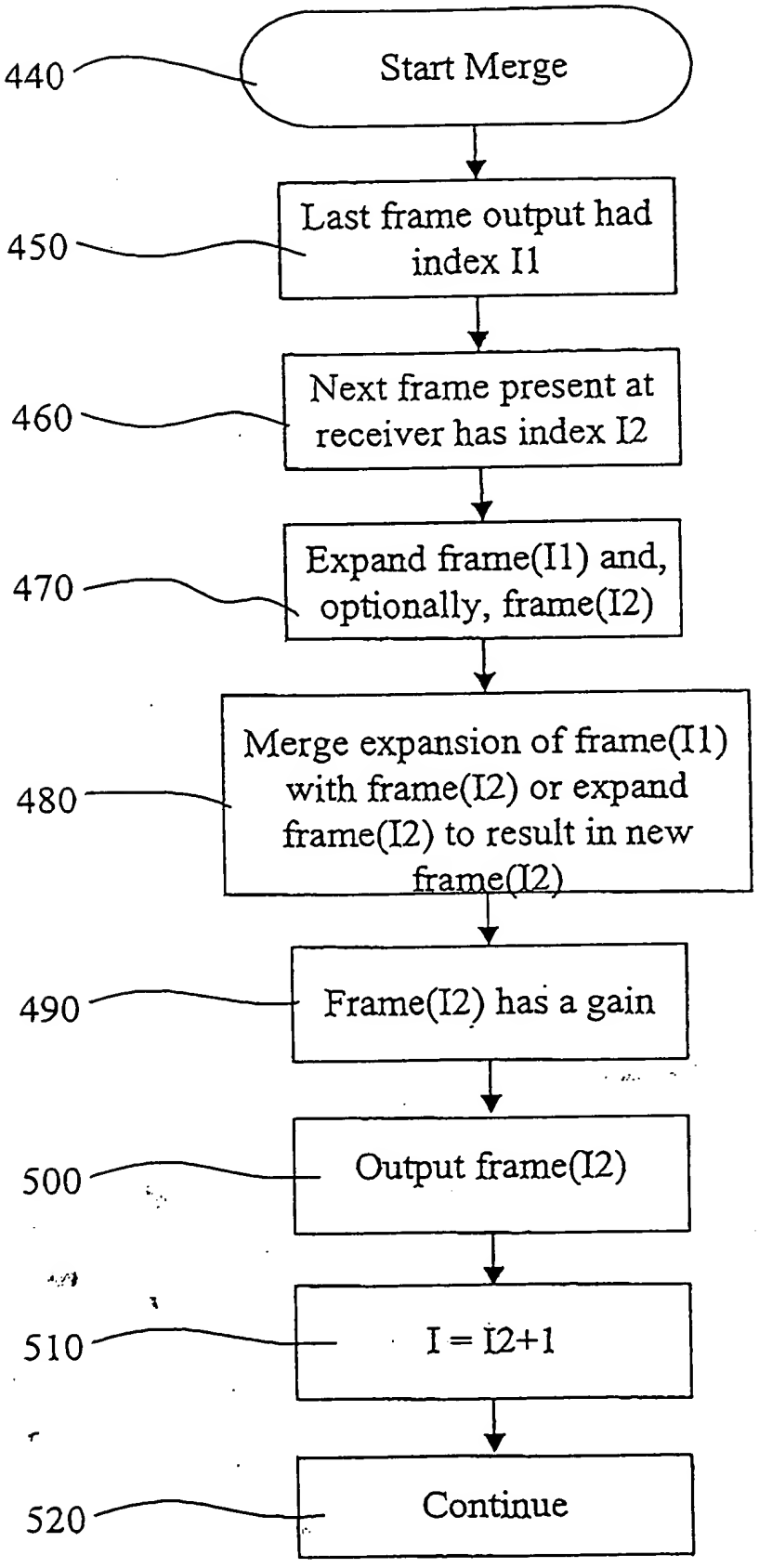

440
Start Merge
450
Last frame output had index I1
460
Next frame present at receiver has index I2
470
Expand frame(I1) and, optionally, frame(I2)
480
Merge expansion of frame(I1) with frame(I2) or expand frame(I2) to result in new frame(I2)
490
Frame(I2) has a gain
500
Output frame(I2)
510
I = I2+1
520
Continue

FIG. 7

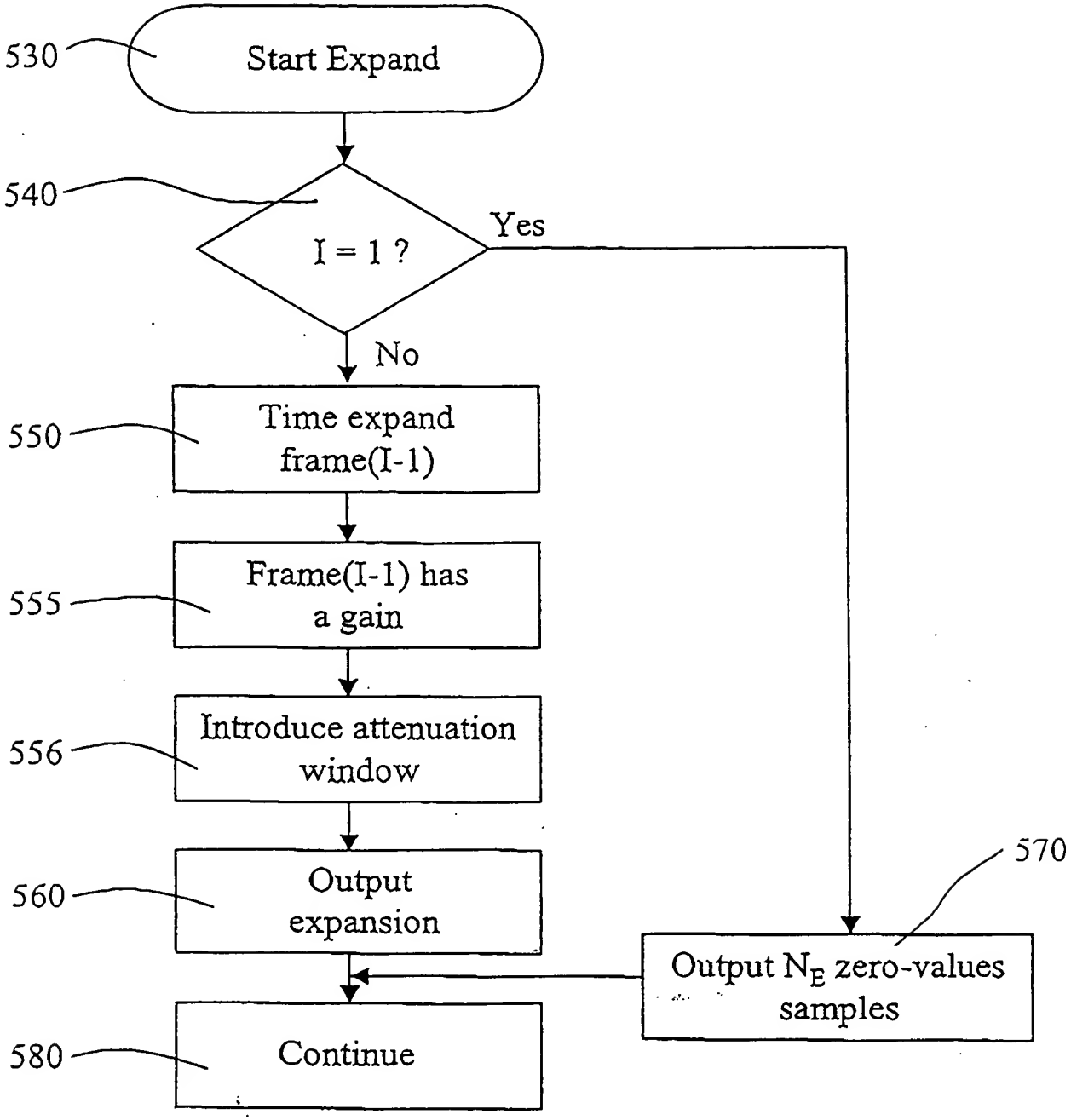

530
Start Expand
540
I = 1 ?
Yes
No
550
Time expand frame(I-1)
555
Frame(I-1) has a gain
556
Introduce attenuation window
560
Output expansion
570
Output N_E zero-values samples
580
Continue

FIG. 8

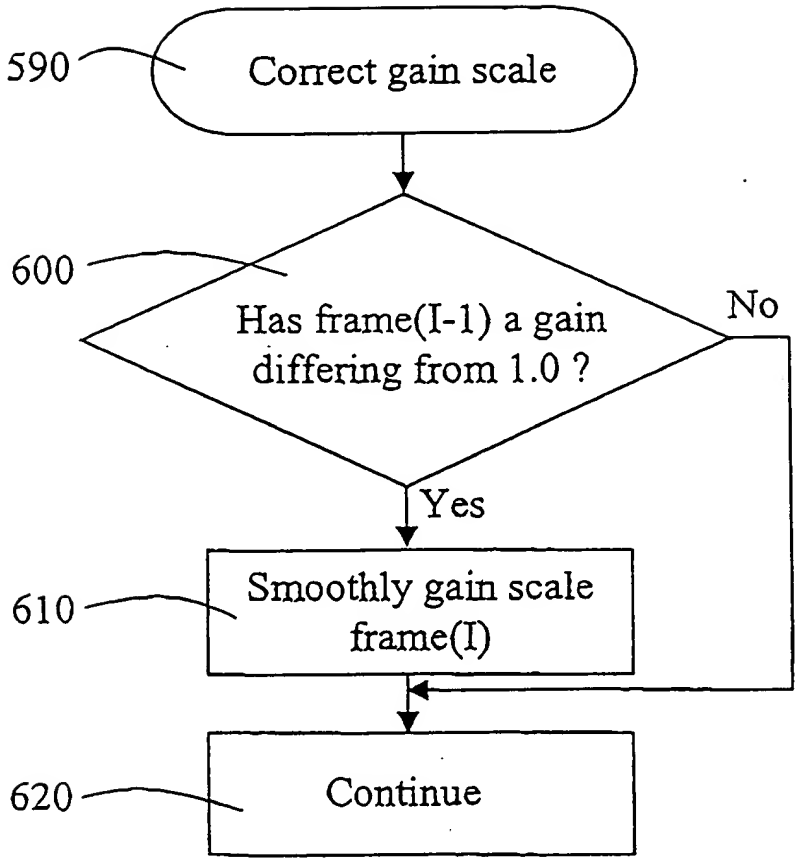

590
Correct gain scale
600
Has frame(I-1) a gain differing from 1.0 ?
No
Yes
610
Smoothly gain scale frame(I)
620
Continue

FIG. 9

4.Jan. 2000 11:11 GLOBAL IP SOUND AB No.0158 P. 48/50

EP 99 93 0308 .. 020400

46840950

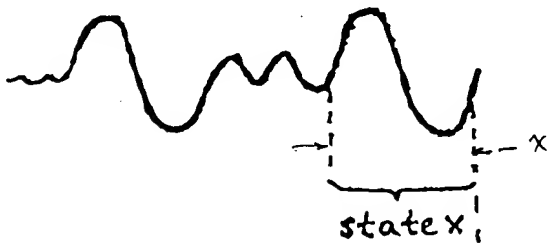


FIG. 10a

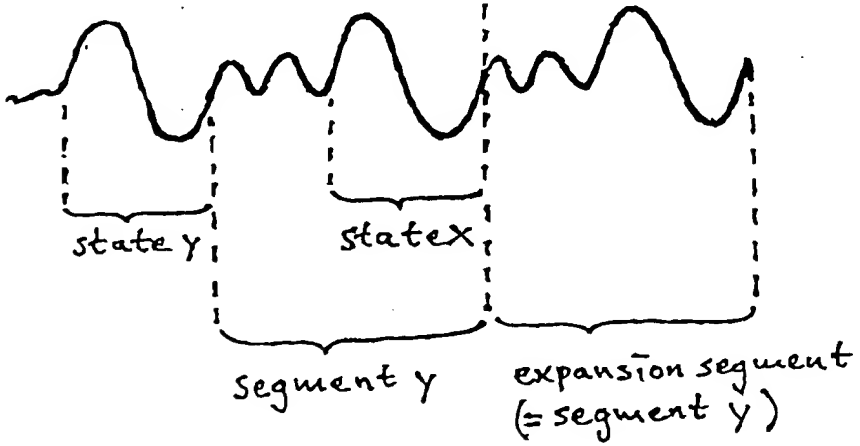
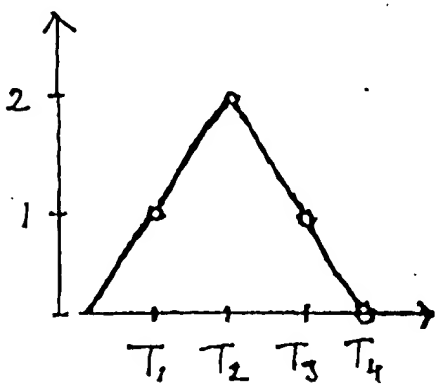
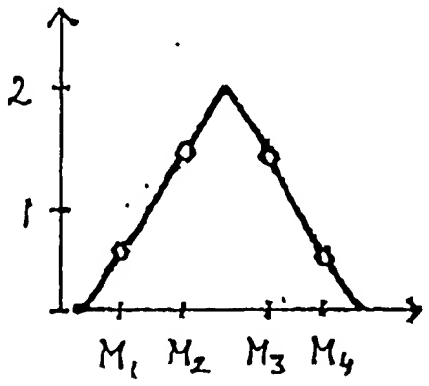


FIG. 10b



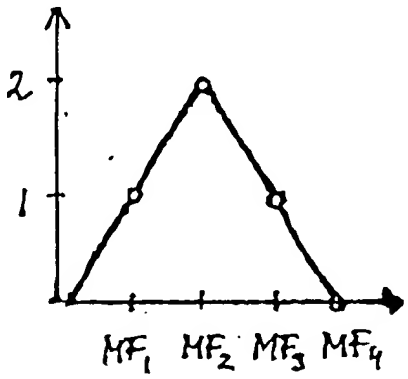
True state

FIG. 11a



State with no fractional delay

FIG. 11b



State with fractional delay 1/2

FIG 11c

No.0158 P. 49/50
GLOBAL IP SOUND AB
4.Jan. 2000 11:11
468409550

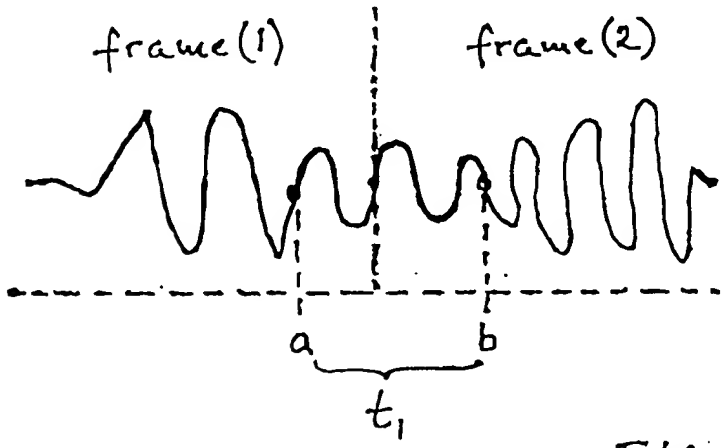


FIG. 12a

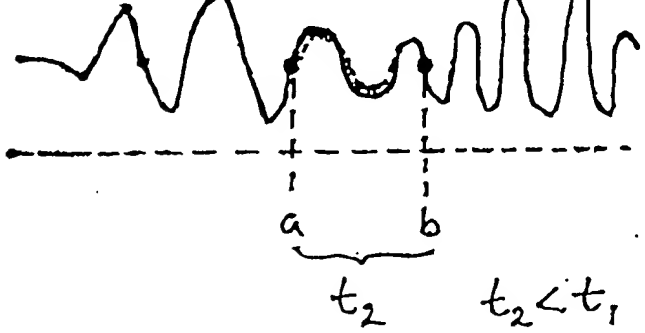


FIG. 12b

4.Jan. 2000 11:12 GLOBAL IP SOUND AB No.0158 P. 50/50
26-DEC-99 TUE 10:33 AMENDMENT STOCKHOLM 4684409550 FAX NO. 4684409550
09498308 .020400